



NATURAL GAS AND ALGERIAN STRATEGY FOR RENEWABLE ENERGY

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INTRODUCTION

- ❑ The renewable energies sources can **contribute** to the reduction of the **greenhouse gas emissions** and to the security of the energy supply.
- ❑ Algeria has not only extensive **gas reserves**, but also **huge** renewable energy resources especially solar and wind power.
- ❑ Algeria plans to increase the **share** of renewable energy in its total supply to **5** per cent by 2010.
- ❑ To achieve this, Algeria has developed its own national **strategy** for renewable energy.

IMPORTANCE AND ADVANTAGES OF THE RENEWABLE ENERGIES

The renewable energies :

- ❑ contribute to the reduction of the greenhouse gas emissions ;
- ❑ provide opportunities for poverty eradication, particularly in rural and remote regions;
- ❑ limit the risks and the pollution of air, water, ground and biosphere ;
- ❑ enhance energy security;
- ❑ preserve the reserves of the natural resources;
- ❑ reinforce the local economy by the development of small and medium-sized companies;
- ❑ create export opportunities of electricity;

ALGERIAN RENEWABLE PROGRAMME

- ❖ Algeria has set up a national programme for the promotion of renewable energy sources in the frame of its sustainable energy development plan for 2020.
- ❖ The first target is to increase electricity production by the renewable energies to **5%** of the total production by 2010.
- ❖ During the last decade a number of **regulatory** and **institutional measures** have been introduced in order to deal effectively with environmental concerns in development projects and with highly polluting activities.

Three principal reasons plead in favour of renewable energies development in Algeria :

1. They constitute a solution economically viable to provide energy services to the rural isolated populations in particular in the Great South areas,
2. They allow a sustainable development because of their inexhaustible character, and of their limited impact on the environment and contribute to the safeguarding of our fossil resources,
3. The monetisation of these energy resources can have only positive repercussions as regards of regional balance and creation of jobs.

INSTITUTIONAL MEASURES FOR THE RENEWABLE ENERGIES

- The law relative to the electricity and to the public distribution of gas, promulgated in February 2002, liberalized the sector of electricity .
- A decree, on diversification of electricity production costs was enacted the 25th of March 2004.
- The law on renewable energies within the framework of the sustainable development promulgated in August 2004.
- A lawful text was recently promulgated, to ensure the price support of electricity produced from renewable energies.
- To develop renewable energies projects, Algeria created, the company **New Energy Algeria** (NEAL).

NEW ENERGY ALGERIA

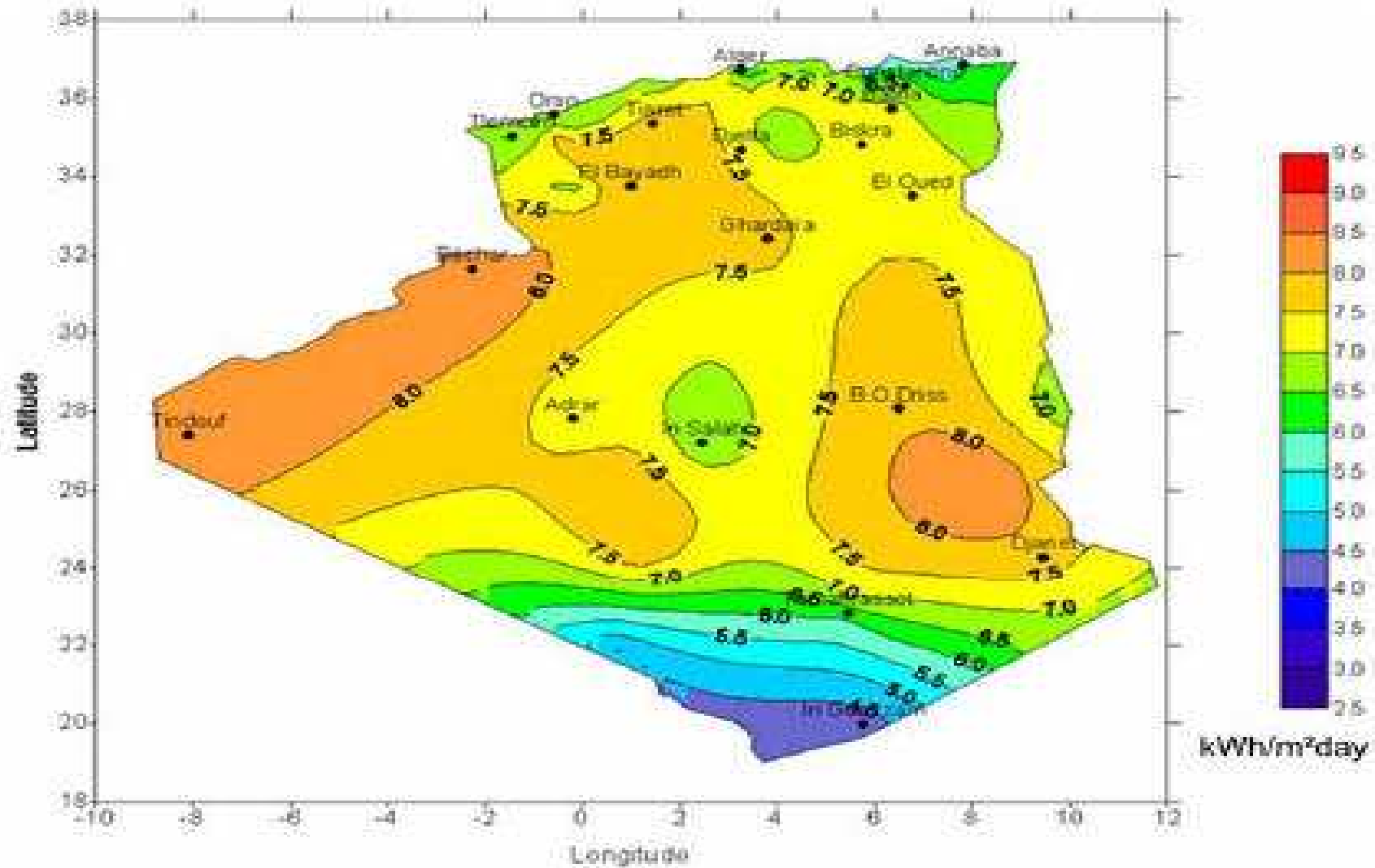
Neal is a company created in July 2002 between Sonatrach, Sonelgaz the national power company and a private investor the objective is the :

- ✓ promotion and the development of new and renewable energies,
- ✓ identification and the realization of projects related to these energies,
- ✓ definition, development and the implementation of development strategies,
- ✓ organization of industrial and commercial activities

- ❖ contribution to the production of electricity from solar and wind,
- ❖ marketing of the electricity produced this way as well on the local market as to export,
- ❖ promotion of photovoltaic, in particular in the south of the country,
- ❖ search of partners for the investment and the exploitation of new and renewable energies,
- ❖ constitution of a research pole for the solar with the research and/or training centers.

FIELD OF RENEWABLE ENERGIES

Average Daily Sum of Direct Normal Irradiation in the Month of June



FIELD OF RENEWABLE ENERGIES

Solar Energy

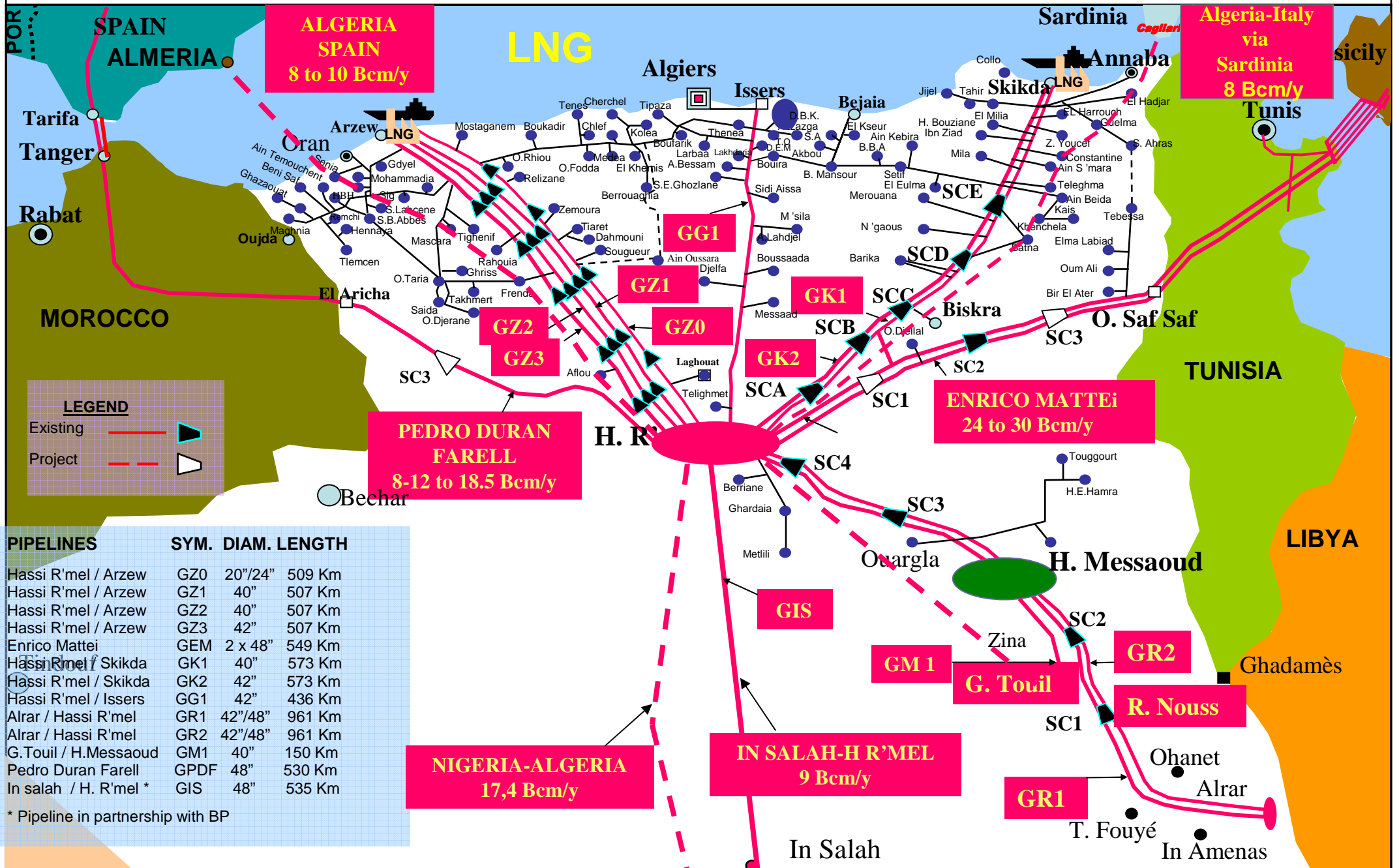
Regions	Coastal Region	High Plateaus	Sahara
Surface (%)	4	10	86
Average sunshine duration (Hours/year)	2650	3000	3500
Received average energy (Kwh/m²/year)	1700	1900	2650

Solar Potential in Algeria

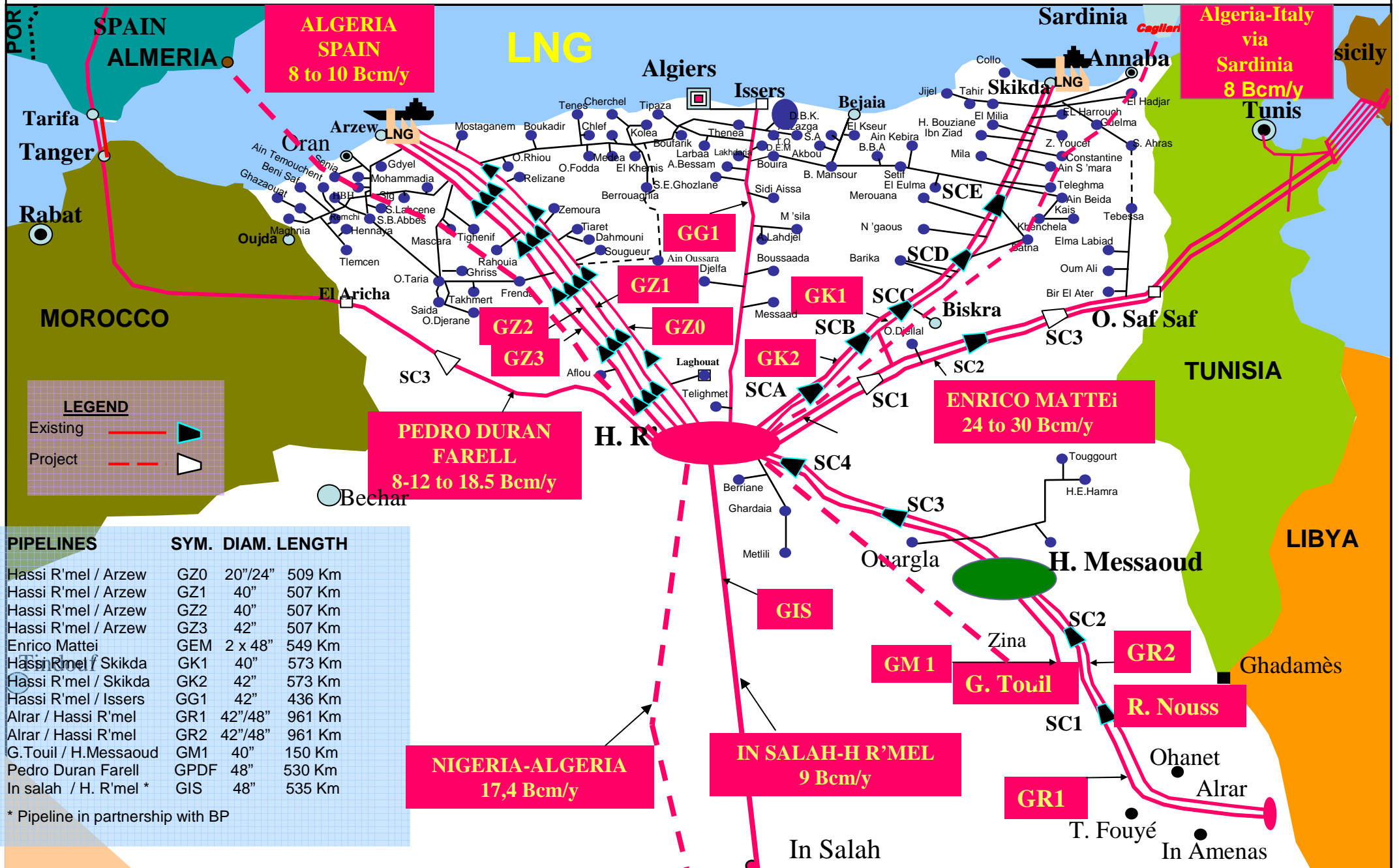
□ The exploitation of this solar potential enables us to complete our program for **rural** electrification;

□ Today **95%** of the country is covered by the **domestic grid**. Remote areas, far away from the power grid can only benefit from electricity supplied by an adequate use of renewable energy.

ALGERIAN GAS TRANSMISSION NETWORK AND NEW GAS PROJECTS



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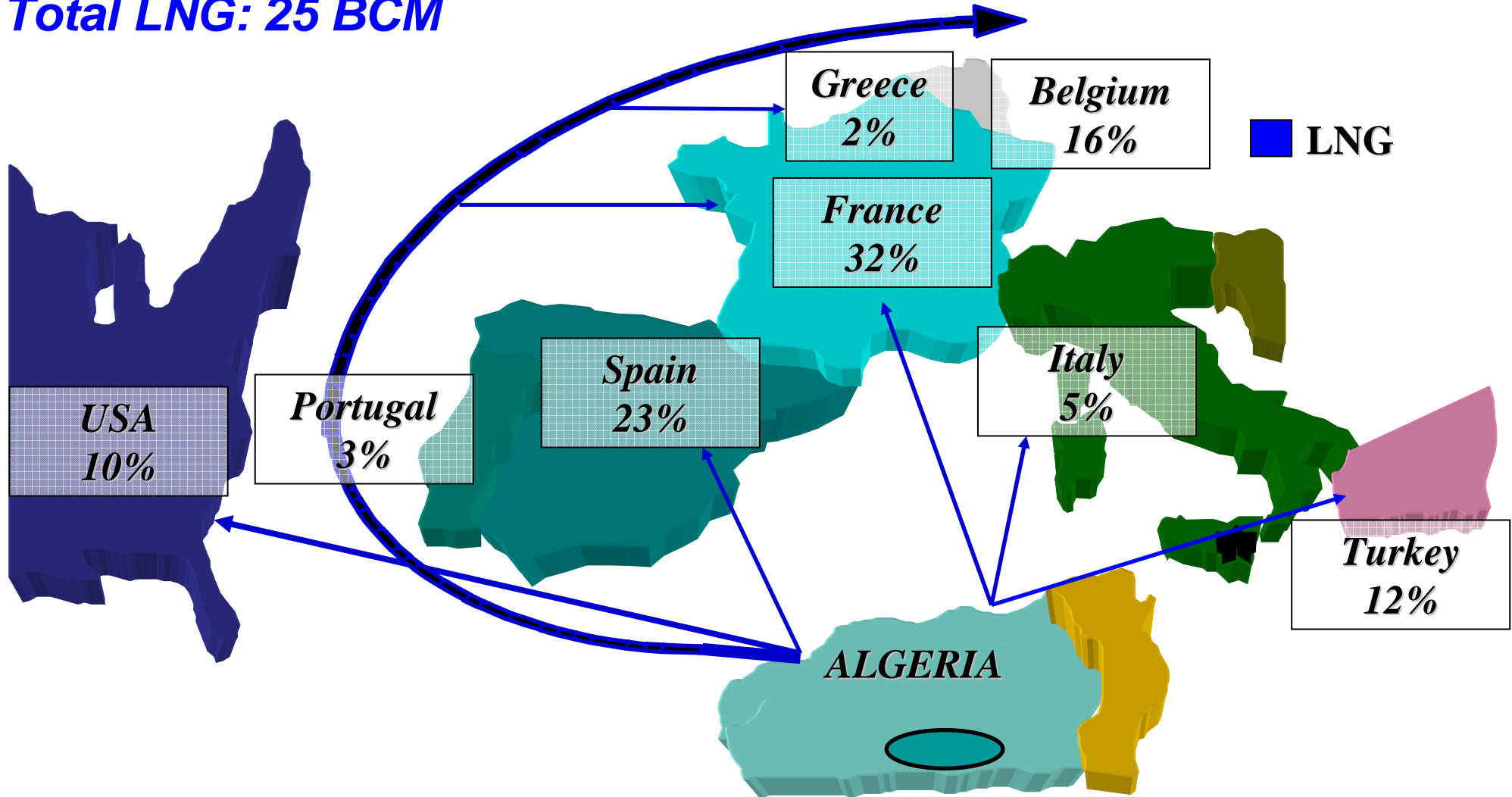


Algerian LNG Exports in 2004

Total : 60.3 BCM

Algerian Gas is mainly marketed in Europe

Total LNG: 25 BCM



**EXPECTED GAS
EXPORT CAPACITY**

85 BCM/Y BY 2010

MEDGAZ Project

- Flowrate: 8 Billion m³/year
- Hassi R' Mel to Beni Saf (Onshore Pipeline/Algeria)
- Beni Saf to Almeria (Offshore Pipeline)





GALSI Project

- Hassi R' mel - El Kala (onshore pipeline/Algeria) : Length: 640 km.
- El Kala - Cagliari (offshore): Length: 310 km; Depth: 1950 M
- Cagliari - Olbia (Sardinia) : Length: 300 km
- Olbia-C.D.Pescaia (Offshore) Length : 220 km; Depth : 900 M

Trans Saharan Project

Gas pipeline of approximately 4500 km linking the region of Warri (Nigeria) to Algeria and Europe:

- Flowrate : 18 To 25 BCM;
- 2500 km on the Algerian territory;
- 750 km on the territory of Niger;
- 1300 km on the territory of Nigeria.



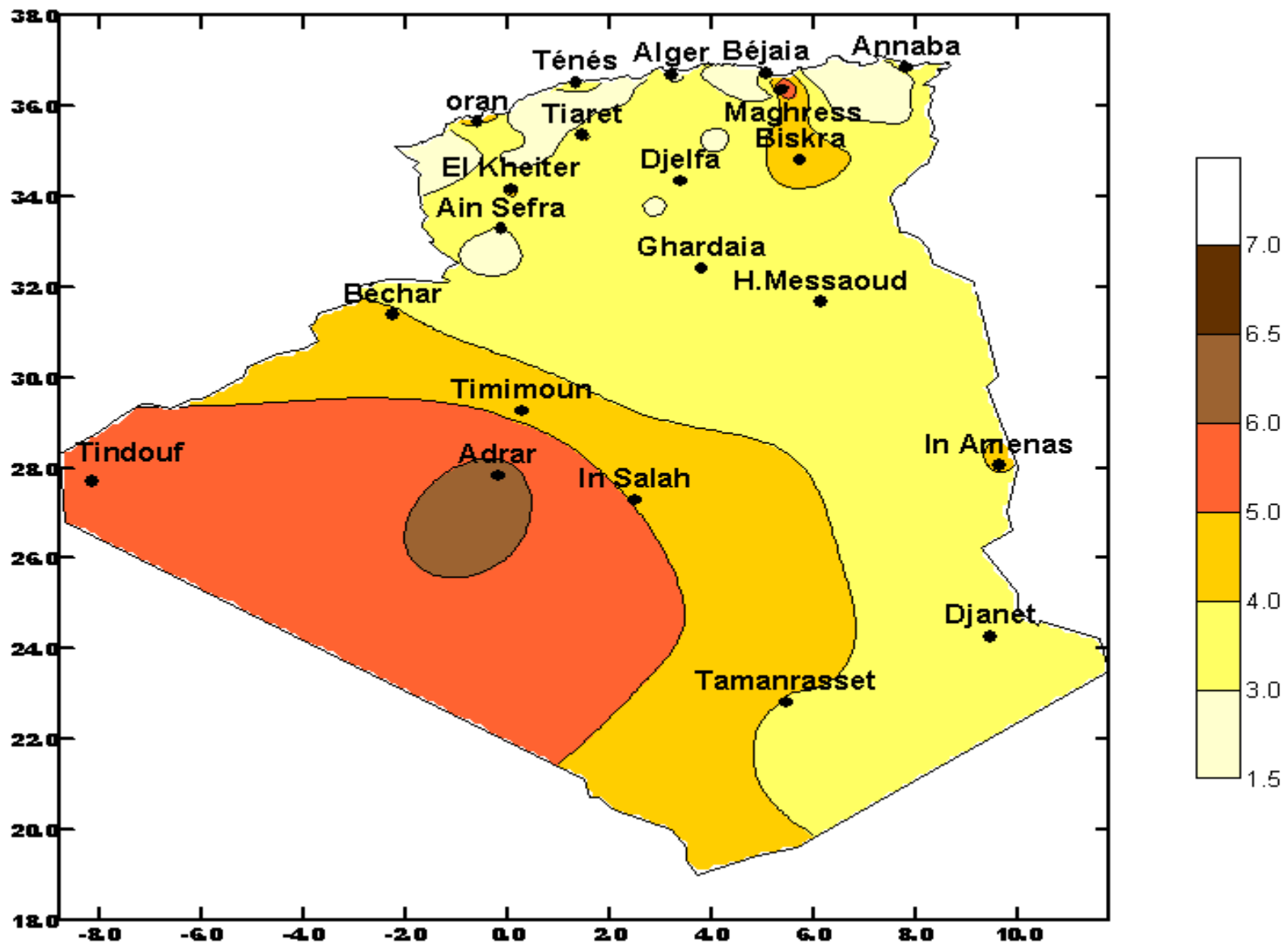
HYBRID SOLAR GAS PROJECT

- **Algeria strategy** consists in carrying out a **synergy** between the Solar one and the natural gas thanks to hybrid solar gas projects by **profiting** from the Algerian **natural gas endowment** and to the **permanent sun shining** of the South of the country.
- An important **hybrid solar gas** project is being planned and has already prompted some interested responses.
- The first project adopted by Neal is the realization in Hassi R'mel (South Algeria) of a **hybrid power station** i.e running with **gas** and **solar** of a capacity of **150 MW** including **25 MW** of **solar** field.

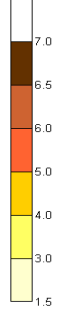
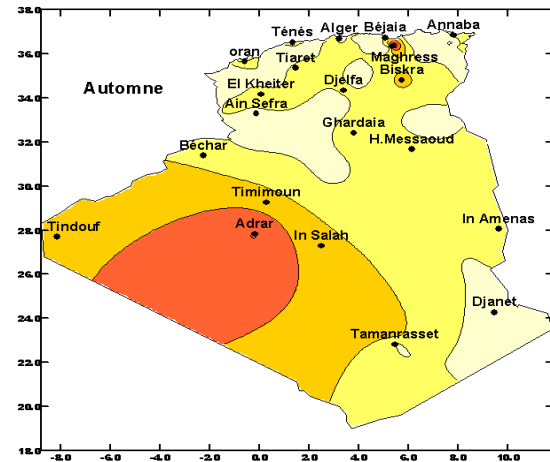
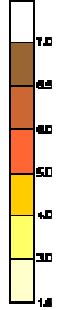
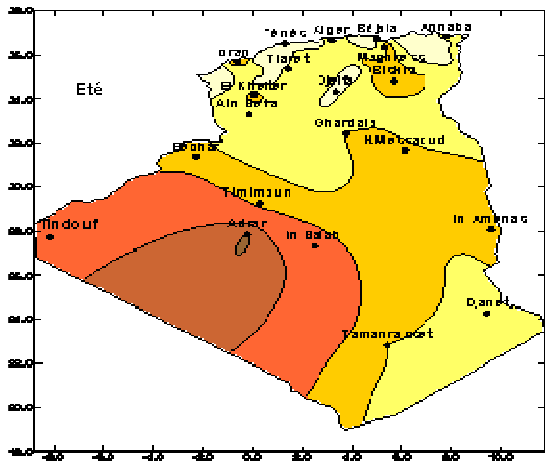
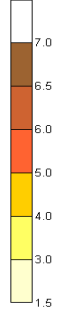
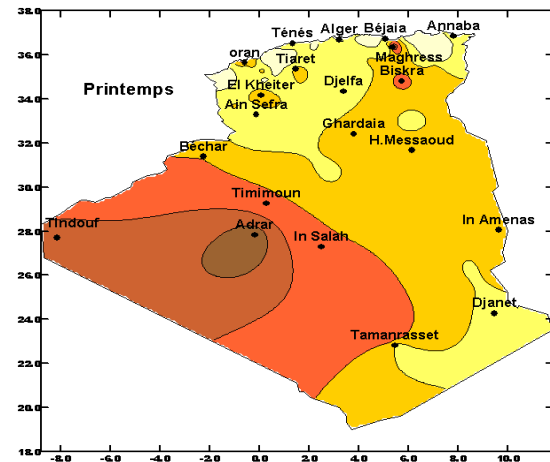
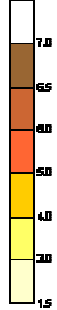
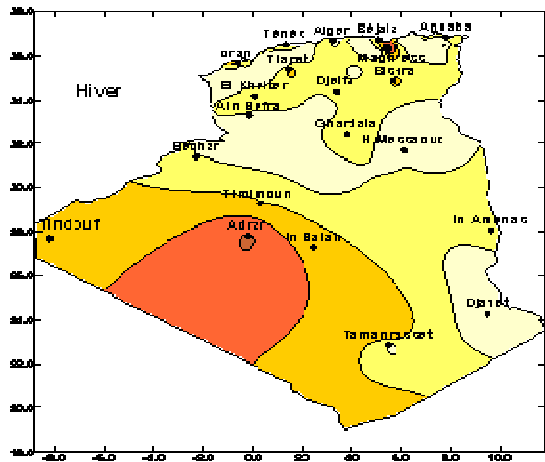
❖ Algeria sees ideal opportunities of combining Algeria's richest fossil energy source – the **natural gas** – with Algeria's most **abundant renewable energy** source – the sun – by integrating concentrating solar power into natural gas combined cycles.

❖ The development of solar energy could **save significant** quantities of hydrocarbons and particularly of **natural gas**, which could be **exported** towards Europe and the United States.

❖ The positive implications are double: Firstly, the **reduction** of burned fossil fuels, will reduce the **greenhouse** gas emissions, while **contributing** to **improve** the energy supply of the our partners.



Annual map of the wind average velocity to 10m of the ground (m/s)



Seasonal map of the wind velocity

Project Wind Farm

The second project is the realization of a **wind farm** in Tindouf (South Algeria) of a capacity of **10 MW**. It will be of the wind-diesel hybrid type.

CONCLUSION

➤ **Algerian** energy **strategy** major concerns and priorities have always been the **important convergence** between energy management, **environment** and sustainable development.

➤ The technically exploitable potential of **renewable energies** in **Algeria** is **considerable** and the quality of the fields is such as profitable investments can be considered for their development.

➤ The development of **renewable energies** corresponds to the option of a local development, monetizing the existent resources, supporting employment and replying to social waiting in favor of a **sustainable development**.

➤ **Algeria's** solar potential and land resources are **optimal** for the implementation of solar thermal power technologies.

➤ Overall, **Algeria** is aiming at a **5%** share for **solar** in the country's electricity mix by **2010**.

➤ **Algeria** has an **efficient** electric **grid**, an important energy potential allowing for a **significant** power generation from **renewable** sources that may **supply** the European market.

THANK YOU